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### **The Influence of Carbohydrate Plus Protein Supplementation on Markers of Exercise Induced Muscle Damage**

It is widely known that anaerobic exercise causes muscle damage, the severity of this exercise induced muscle damage (EIMD) can be measured by the magnitude of creatine kinase (CK), found in the blood following high intensity exercise. CK is an enzyme used to catalyze reactions that take place inside healthy muscle cells, and is leaked into the blood when the sarcolemma is damaged from EIMD. Post exercise carbohydrate and protein supplementation has been theorized to limit the extent of EIMD by promoting tissue synthesis as well as limiting protein degradation via increased insulin levels as a result of carbohydrate ingestion. Many studies have examined the effect of carbohydrate and protein supplementation on recovery following aerobic exercise, but few investigate recovery from anaerobic exercise. Participants will consume an isocaloric diet for 7 days and consume either a supplemental blend of carbohydrate and protein (2:1 ratio) or a pure carbohydrate supplement 4 days prior to undergoing repeated eccentric contractions (100 box jumps) and for 3 days afterwards, to elicit muscle damage. To examine the effect of the supplements on muscle damage CK will be measured in the blood at baseline and then 12, 24, 48, and 72 hours post muscle damage. It is hypothesized that there will be significantly lower CK levels in the blood following the anaerobic exercise in the carbohydrate and protein supplement group, demonstrating its effect on the recovery rate of skeletal muscle.

*Keywords: carbohydrate and protein supplementation, muscle damage, muscle recovery, creatine kinase*